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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,339	06/19/2001	Katsuaki Abe	P21129	2271

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EXAMINER

ADHAMI, MOHAMMAD SAJID

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/883,339	ABE ET AL.	
	Examiner	Art Unit	
	Mohammad S. Adhami	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: On pg. 24 line 14 reference 203a of Fig. 3 is not shown, and on pg. 24 line 18 reference number 204c of Fig. 3 is not shown. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 9 line 5, the references 101b and 101c of Fig. 2 are incorrect and should be written as 201b and 201c. On Page 10 line 9, reference 202a of Fig. 2 should be 201a. On page 201b and 201c. On Page 10 line 9, reference 202a of Fig. 2 should be 201a. On page On Page 16 line 6, reference 3216 of Fig. 5 should be 3026. On Page 18 line 22, reference 3025 of Fig. 5 should be 3024. On page 35 lines 6 and 10, reference 7011 of Fig. 10 should be 7022.

Appropriate correction is required.

Claim Objections

3. Claim 6 is objected to because of the following informalities: In claim 6, the word "another user" should be replaced with a more precise definition of what the "another user" is. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "small" in claim 7 is a relative term which renders the claim indefinite. The term "small" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The indefiniteness of a small amount renders the claim indefinite because the amount of traffic needed to transmit using the sub-timeslot is not defined.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. Claims 1, 4, 7, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Haartsen (US 6,850,740).

Re claim 1:

Haartsen has a means for storing data to be transmitted (Col. 8 lines 7-8 “unit...may be required to store more packets”), transmitting data on a main-timeslot while transmitting part of the data store on a sub-timeslot (Col. 2 lines 60-62 “a TDMA system which utilizes two time-slots when needed”), detecting an error (Col. 2 lines 52-53 “detects a higher bit error rate”)), outputting the data as received data when the error is not detected and outputting data transmitted on the main-timeslot and sub-timeslot when an error is detected (Col. 3 lines 32 “a first radio link is established between the transmitter and the receiver” and Col. 2 lines 50-53 “if one of the receivers...detects a higher bit error rate (BER) than a predetermined threshold a process will be initiated to use more than one time-slot.”).

Re claim 4:

Haartsen has an M-ary modulation scheme (Col. 1 lines 63,66-67 “M-ary Frequency Shift Keying (MFSK)...is a commonly used modulation method to achieve spreading.” Haartsen refers to MFSK in a general matter, thus transmitting over a “sub-timeslot” follows the same modulation as other transmissions.)

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Re claim 7:

Haartsen has a transmission using the sub-timeslot when “a traffic amount of the system is small” (Col. 5 lines 19-20 “When the recipient experiences a good quality on both links, one link can be released.” Good quality is obtained when the traffic amount has been lowered, otherwise there would be interference because of the high traffic and the quality would be bad. The link released could either be link using the main-timeslot or the link using the sub-timeslot.)

Re claim 10:

Haartsen has a means for storing data to be transmitted (Col. 8 lines 7-8 “unit...may be required to store more packets”), transmitting data on a main-timeslot while transmitting part of the data store on a sub-timeslot (Col. 2 lines 60-62 “a TDMA system which utilizes two time-slots when needed”), outputting the data as received data on the main-timeslot and sub-timeslot (Col. 3 lines 32 “a first radio link is established between the transmitter and the receiver” and Col. 2 lines 50-53 “if one of the receivers...detects a higher bit error rate (BER) than a predetermined threshold a process will be initiated to use more than one time-slot.” Where the extra used time-slot is the “sub-timeslot”).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Decker (EP 0 771 092 A1).

As discussed above, Haartsen meets all the limitations of the parent claim. Haartsen also discloses [Claim 11] "transmitting the data on the main-timeslot by Frequency Hoping" (Col. 4 lines 61-64 "the FH system of the present invention uses a FH/TDD channel divided into time slots in a radio communication system including a transceiver which alternately transmits.")

Haartsen does not disclose a puncture process.

[Claim 2] Decker discloses a puncture process (Pg. 2 lines 46-47 "this VRRM frame is now encoded using a punctured half rate convolutional coder") and transmitting "a whole or part of the data deleted by the puncture process" on a sub-timeslot (Pg. 2 lines 54-55 "for a retransmission another layer 1 frame...is transmitted." As defined in reference to claim 1, the sub-timeslot is used when an error is detected. The "transmission" of the layer 1 frame is thus done using the sub-timeslot).

[Claim 3] Decker also discloses a "second apparatus...estimating a received quality on data" and transmitting this estimation to the "first apparatus", where the first apparatus transmits data with the poor received quality (Pg. 4 lines 41,44-46 "a predicted decision can be made directly after reception of a layer 1 frame." "If this value keeps within a given limit (L) further information is requested by the receiver side. Therefore, a negative acknowledgement is sent

to the transmitter side. If the sum exceeds the limit (L) a positive acknowledgement is sent to the transmitter side”).

Haartsen and Decker are analogous because they both pertain to transmitting packets.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haartsen to include puncture processing and estimating received quality of data as taught by Decker in order to optimize “throughput in response to a fluctuation in the error rate on a packet radio channel” (Decker Page 1).

9. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Decker as applied to claim 4 above, and further in view of Klein (US 6,804,211) and Joe (“An Adaptive Hybrid ARQ Scheme with Concatenated FEC Codes for Wireless ATM”).

As discussed above, Haartsen in view of Decker meets all the limitation of the parent claim.

Haartsen in view of Decker does not disclose, “A puncture rate in the puncture processing in coding and a modulation scheme used in transmitting the sub-timeslot are controlled while being adaptively switched”.

[Claim 5 and 8] Trott discloses, “A modulation scheme used in transmitting the sub-timeslot...being adaptively switched” (Col. 5 lines 32-35 “Adaptive modulation includes varying the bit per symbol rate modulation scheme or modulation complexity of signals transmitted.” It is inherent in the above

statement that because the modulation scheme can be changed, different modulations schemes must be used.).

Haartsen in view of Decker is analogous to Klein because they pertain to data transmission.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haartsen in view of Decker to adaptively switch a modulation scheme as taught by Klein in order to "increase bandwidth utilization" (Klein Col. 2 lines 24-27).

[Claim 8] Joe discloses a puncture rate in coding being adaptively switched (Pg. 135 Sec. 4.2 "The key idea to the scheme is to adapt the code rate to the channel conditions.").

Haartsen in view of Decker and further in view of Klein and Joe are analogous because they all pertain to data transmission.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haartsen in view of Decker and further in view of Klein to adaptively switch the puncture rate as taught by Joe in order to "maximize throughput" (Joe Pg. 135 Sec. 4.2).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Stacey (US 6,434,154).

As discussed above, Haartsen meets all the limitations of the parent claim.

Haartsen does not disclose a "sub-timeslot" assigned "to one time slot with data to be transmitted to another user".

Stacey discloses a "sub-timeslot" assigned "to one time slot with data to be transmitted to another user" (Col. 4 lines 39-41 "each time slot...is subdivided or portioned into a number of similar minislots...which can be allocated to user traffic on an individual basis". Since the minislots ("sub-timeslots") can be allocated on an individual basis, two different individuals ("users") can be assigned to one time slot.)

Haartsen and Stacey are analogous because they both pertain to data communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haartsen to include "sub-timeslots" that are assigned to a time slot with data to be transmitted to another user as taught by Stacey in order "to improve the utilization of the available system upstream bandwidth" (Stacey Col. 4 lines 37-38).

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen in view of Rohani (US 5,390,166).

As discussed above, Haartsen meets all the limitations of the parent claim.

Haartsen does not disclose "a timeslot with a new burst length...composed by combining portions corresponding to the main-timeslot and to the previous sub-timeslot."

Rohani discloses "a timeslot with a new burst length...composed by combining portions corresponding to the main-timeslot and to the previous sub-timeslot" (Col. 1 lines 44-49 "The data signal is then recovered from a first

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transmission burst received from a first transmitter burst in a first time period and from a second transmission burst received from a second transmitter in a second time period. The two data signals are then...combined.”)

Haartsen and Rohani are analogous because they both pertain to transmission using time slots.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haartsen to compose a new burst length timeslot by combining a main-timeslot and a sub-timeslot as taught by Rohani in order to provide “improved reception by a subscriber” (Rohani Col. 1 lines 17-19).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rakib (US 6,937,617) shows different modulation schemes that can be used. Dent (US 5,663,957) shows using at least two time slots. Dent (US 5,673,291) shows using puncture coding. Padovani (US 6,574,211) shows sub-timeslots and puncture coding.

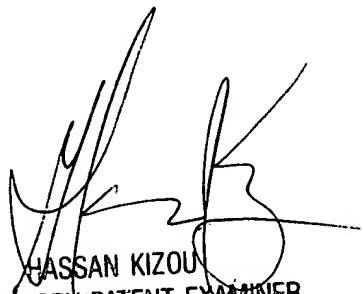
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad S. Adhami whose telephone number is (571)272-8615. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MSA 9/01/2005



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